Results: One hundred sixty-five patients were included in this study. There were 95 (58%) male and 70 (42%) female patients. There were 85 (51%) diabetic and 80 (48%) nondiabetic patients. Fifty-two (32%) of total patients had PAD ≤40 cm/s. Among this group, 21 (13%) patients had ABIs <0.6 and 31 (19%) had ABI of ≥0.6. The rest of the patients, n = 113 (68%) had PAD ≥40 cm/s, with n = 108 (65%) of them having ABIs ≥0.6 (Table). Based on these data, the calculated sensitivity, specificity, the positive predictive value, negative predictive value, and accuracy of a PAV ≤40 cm/s to detect patients with ABI <0.6 were 81%, 78%, 40%, 95%, and 78%, respectively.

Conclusions: Among our outpatients here analyzed, PAV ≤40 cm/s obtained by duplex ultrasound can be used to detect lower extremities arterial insufficiencies with reasonable accuracy.

Table. Duplex study of diabetic and nondiabetic patients with ABIs for given PAVs

		ABI <0.6	*ABI ≥0.6*
PAV ≤40 cm/s	Diabetic (n)	15 (9%)	17 (10%)
	Nondiabetic (n)	6 (4%)	14 (8%)
	All (n)	21 (13%)	31 (19%)
PAV ≥40 cm/s	Diabetic (n)	3 (2%)	52 (31%)
	Nondiabetic (n)	2 (1%)	56 (33%)
	All (n)	5 (3%)	108 (65%)
Total		26 (16%)	139 (84%)

Radial Artery Access for Fistula Interventions. Is It Preferable?

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Objectives: The access site for arterial entrance is traditionally limited to larger vessels. Originally, this included direct puncture of the aorta. Over time, and with improvements in technology, the femoral artery became the site of choice. When it comes to interventions on fistulae, direct puncture of the graft/fistula or antegrade brachial puncture have been utilized. Each of these, however, has their own risks. Puncture of the graft/fistula can lead to outflow obstruction and likely requires double puncture of the graft or vein. Puncture of the brachial artery can cause difficulty in cannulating venous pathology. In addition, dilating the anastomosis from either approach can lead to a change in the configuration of the anastomosis to a more curvilinear appearance with unknown long-term consequences.

Methods: The current investigation focused on retrograde puncture of the radial artery. There were 46 procedures in 57 patients. Sheath size ranged from 6- to 7F and interventions included angioplasty, stenting, and rotational atherectomy. All procedures were done with ultrasound guidance. Heparin was given after sheath entrance in 84% of the patients. No vasodilators were used. Hemostasis was achieved with direct pressure applied through a circumferential band.

Results: In the course of this investigation, no patients suffered from a radial artery occlusion. There was one patient who developed gangrene of two fingers after intervention. Shortly afterward, she also developed gangrene of the contralateral hand. A subsequent angiogram demonstrated no evidence of stenosis at that puncture site. There was, however, significant occlusive disease in the hand. A second patient suffered from a 1-cm area of necrosis of his ipsilateral second finger. Two months later, he developed a larger area of necrosis of his third finger. A subsequent angiogram demonstrated dissection of the distal radial artery. Since the area of tissue loss was small, no intervention was performed.

Conclusions: In conclusion, with the continued advances in technology, the radial artery serves as a promising access site for fistula interventions. Even in the low flow environment distal to an arteriovenous graft or fistula, the complication rate was extremely low, and this approach allowed for addressing a variety of arterial and venous pathologies. In addition, the partially obstructive nature of the sheath may help prevent distal embolization.

Is Advanced Age Correlated with Adverse Outcomes in Carotid Endarterectomy

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Objectives: Multiple carotid endarterectomy (CEA) trials excluded patient populations based on old age presuming higher risk of complications. Carotid artery stenting (CAS) might have been the answer as a minimally invasive alternative in old patients but trials including CREST and SPACE revealed increased morbidity of CAS in the elderly patients. Therefore, it became important to reevaluate the safety of CEA in this patient population.

Methods: Retrospective review of patients 75 years or older who underwent CEA from 2007-2011 was conducted at our institution. National Surgical Quality Improvement Program (NSQIP) data set was used for years 2005-2011 to extract data for patients 75 years or older. The evaluated outcomes were postoperative in-hospital MI or stroke.

Results: A total of 421 CEAs from our institution were reviewed and 16,414 CEAs from NSQIP data set were reviewed. Postoperative in-hospital myocardial infarction rate for our patient series was 0.48% compared with 0.77% in NSQIP. Postoperative in-hospital stroke rate was 1.19% for our patient series compared with 1.11 % in NSQIP.

Conclusions: The outcomes derived from our patient series are consistent with the NSQIP data set outcomes and reveal that CEA is a safe procedure for patients older than 75 years. Since CAS has a higher complication rate in this patient population, age should not be a factor to deny operative intervention for patients older than 75.

Modification of T-graft for Extra Corporal Membrane Oxygenation (ECMO) in a Patient with Small Caliber Femoral Arteries

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Objectives: ECMO requires large diameter cannulas to maintain high blood flow through the circuit. If inserted in small caliber femoral arteries, these cannulas may lead to acute limb ischemia. Authors describe a modified T-graft technique to avoid this complication.

Methods: An 18-year-old female presented with viral cardiomyopathy, systolic heart failure, and acute respiratory distress syndrome. She was placed emergently on veno-arterial (VA) ECMO for cardiopulmonary support through her right common femoral artery with a 15F cannula and right common femoral vein with a 19F cannula. Attempts to place antegrade distal perfusion cannula in the right superficial femoral artery failed. Her right leg developed critical limb ischemia. VA ECMO was switched to left femoral access by modification of T-technique to avoid critical limb ischemia of the left leg. A conduit for left femoral VA ECMO was created using a 8-mm polytetrafluoroethylene (PTFE) graft anastomosed end-to-side to the left common femoral artery. It was tunneled inside a 10-mm Dacron graft to avoid blood seepage through the porous PTFE graft. Both grafts were tunneled underneath the skin and brought through a distal stab wound. The arterial limb of ECMO was connected to the PTFE conduit (Fig). Groin incision was closed primarily.

Results: She continued to have triphasic DP and PT Doppler signals. ECMO flow was never compromised, and there were no local signs of infection. She was successfully decannulated 7 days later with patch angioplasty of her common femoral artery and primary repair of femoral vein.

Conclusions: Review of literature reveals that up to 70% of patients with ECMO cannulas in the femoral arteries exhibit signs of acute ischemia. There is limited experience with use of PTFE as conduit for femoral VA ECMO. Authors describe a modification of T-graft technique to achieve femoral ECMO cannulation while avoiding acute limb ischemia. This technique for VA ECMO is an effective alternative method for femoral cannulation that addresses the significant risk of ischemic vascular complications reported in multiple series. Early operative planning for alternative access sites can be recommended to avoid significant vascular morbidity seen with femoral cannulation for ECMO.

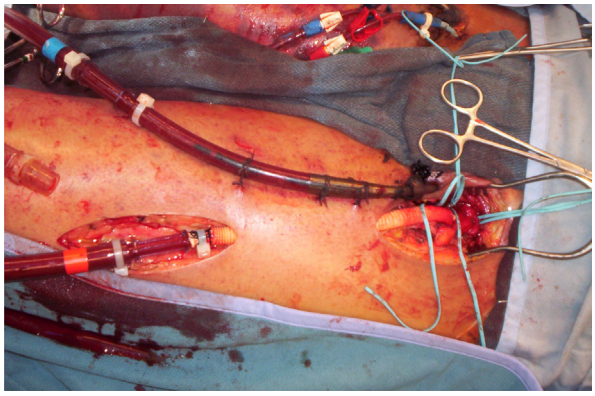

Fig.